

Proposed Standards for the Management of Hazardous Waste ~~Solar~~ Photovoltaic Modules

Legend: Changes are shown from the existing text of the California Code of Regulations, title 22, as:

Underline underline Additions to existing text

Strikeout ~~strikeout~~ Deletions to existing text

For the convenience of the reader, existing text is shown as plain text, text deleted from existing text is shown as strikeout (~~strikeout~~), and added text is shown as underline (underline).

Amend California Code of Regulations, title 22, division 4.5, Table of Contents, chapter 23 to read as follows:

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Article 1. General

§66273.7.1. Applicability — Photovoltaic Modules

Article 3. Standards for Universal Waste Handlers

§ 66273.33. Universal Waste Management Requirements for Batteries, Lamps, ~~and~~ Mercury-Containing Equipment and Photovoltaic Modules.

Amend California Code of Regulations, title 22, division 4.5, chapter 11, article 1, section 66261.9 to read:

§66261.9. Requirements for Universal Waste.

(a) The hazardous wastes listed in this section are exempt from the management requirements of chapter 6.5 of division 20 of the Health and Safety Code and its implementing regulations except as specified in chapter 23 and, therefore, are not fully regulated as hazardous wastes. The wastes listed in this section are subject to regulation pursuant to chapter 23 and shall be known as “universal wastes.”

- (1) Batteries, as described in section 66273.2, subsection (a);
- (2) Electronic devices, as described in section 66273.3, subsection (a);
- (3) Mercury-containing equipment, as described in section 66273.4, subsection (a);

(4) Lamps, as described in section 66273.5, subsection (a) (including, but not limited to, M003 wastes);

- (5) Cathode ray tubes, as described in section 66273.6, subsection (a);
- (6) Cathode ray tube glass, as described in section 66273.7, subsection (a);
- (7) Aerosol cans, as specified in Health and Safety Code section 25201.16; and
- (8) PV modules, as described in section 66273.7.1, subsection (a);

(b) Unless specified otherwise in section 66273.60, universal wastes shall be managed as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division upon arrival at a destination facility.

NOTE: Authority cited: Sections 25141, 25150, 25150.6, 25201, 25214.9, 25214.10.1, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code. Reference: Sections 25117.2, 25141, 25150, 25159.5, 25180 – 25196, 25214.5, 25214.9, 25219, 25219.1, and 25219.2, Health and Safety Code; 40 CFR Section 261.9.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 1, section 66273.1 to read:

Chapter 23. Standards for Universal Waste Management

Article 1. General

§66273.1. Scope.

(a) This chapter establishes requirements for managing universal wastes, as defined in section 66273.9. The following universal wastes are subject to regulation pursuant to this chapter:

- (1) Batteries, as described in section 66273.2, subsection (a);
- (2) Electronic devices, as described in section 66273.3, subsection (a);
- (3) Mercury-containing equipment, as described in section 66273.4, subsection (a);
- (4) Lamps, as described in section 66273.5, subsection (a) (including, but not limited to, M003 wastes);
- (5) Cathode ray tubes, as described in section 66273.6, subsection (a);
- (6) Cathode ray tube glass, as described in section 66273.7, subsection (a);
- (7) Aerosol cans, as specified in Health and Safety Code section 25201.16; and
- (8) PV modules, as described in section 66273.7.1, subsection (a).

(b) This chapter provides an alternative set of management standards in lieu of regulation as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division. The alternative management standards of articles 1 through 3 of this chapter do not apply to destination facilities, as defined in section 66273.9, except as otherwise specified in section 66273.60, subsections (b) or (c).

NOTE: Authority cited: Sections 25141, 25150, 25150.6, 25201, 25214.9, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code. Reference: Sections 25141, 25150, 25159.5, 25201, 25212, 25214.6, 25214.9, 25219, 25219.1, and 25219.2, Health and Safety Code; 40 CFR Section 273.1.

Add California Code of Regulations, title 22, division 4.5, chapter 23, article 1, section 66273.7.1 to read:

§66273.7.1. Applicability—PV Modules.

(a) PV modules covered pursuant to chapter 23. The requirements of this article apply to PV modules, as defined in section 66273.9, except those listed in subsection (b) of this section.

(b) PV modules not covered pursuant to this chapter. The requirements of this chapter do not apply to the following PV modules:

(1) PV modules that are not yet wastes pursuant to chapter 11 as provided in subsection (c) of this section;

(2) PV modules that do not exhibit a characteristic of a hazardous waste as set forth in article 3 of chapter 11 and that are not otherwise identified as hazardous waste pursuant to chapter 11 of this division;

(3) PV modules that are destined for recycling (or are recycled) by being “used in a manner constituting disposal,” as described in section 66266.20, or that are destined for disposal (or are disposed) to a class I landfill. Such PV modules shall be managed as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division;

(4) PV modules that are managed as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division;

(5) PV modules that were previously identified as waste pursuant to chapter 11, but are no longer identified as a waste (e.g., a discarded PV modules that is refurbished and is returned to service).

(c) Generation of waste PV modules.

(1) A used PV module becomes a waste on the date when the PV module is discarded by being removed from service and the owner does not intend to re-install it because the PV module no longer functions as designed, is broken beyond repair, or otherwise cannot be reused;

(2) Unused PV modules;

(A) An unused PV module that is not a retrograde material becomes a waste on the date it is discarded (e.g., when stored prior to being sent for reclamation);

(B) An unused PV module that is a retrograde material becomes a waste on the date that it becomes a recyclable material pursuant to subsection (e) of the definition of “recyclable materials” in section 66260.10.

(d) A respondent in an action to enforce regulations implementing this division who claims that a PV module is not a waste bears the burden of demonstrating that there is a known market or disposition for its use as a PV module.

NOTE: Authority cited: Sections 25141, 25150, 25214.6 and 58012, Health and Safety Code. Reference: Sections 25141, 25150, and 25159.5, Health and Safety Code.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 1, section 66273.9 to read:

§66273.9. Definitions.

When used in this chapter, the terms listed in this section have the meanings given below. Unless otherwise specified, listed terms that cross-reference the definitions of other listed terms refer to the definitions set forth in this section for those other terms. Terms that are also defined in chapter 10 of this division are duplicated here solely for convenience of the regulated community. Terms used in this chapter that are not defined in this section but are defined in chapter 10 of this division and/or chapter 6.5 of division 20 of the Health and Safety Code have the meanings given in those sources.

"Photovoltaic (PV) Module":

(a) Means

(1) any photovoltaic device that converts photons from the sun into electricity for general use including:

(A) An "intact" PV module. "Intact PV module" includes:

(i) PV modules or individual cells of disassembled PV modules that contain glass panes on one or both sides that are cracked or otherwise damaged, provided that the size and shape of the module or cell remain identical to those of a new PV module or of a cell respectively, regardless of whether the PV modules or cells are functional.

(ii) PV modules that do not contain glass (e.g., flexible membrane PV modules).

(B) A "removed intact PV module component" "Removed intact PV module components" means frames, junction boxes, wires, and cables that are intact and have been removed from PV modules.

(b) Does not mean:

(1) physically-damaged, -deteriorated, or -altered PV modules;

(2) fractured or fragmented portions of a PV module, that are no longer recognizable as a PV module;

(3) solar-powered electronic devices that have one or more photovoltaic cells incorporated into their structures.

NOTE: Authority cited: Sections 25141, 25150, 25214.6, 25150.6, 25201, 25214.9, 25219.1, ~~25259~~ and 58012, Health and Safety Code; and Section 42475, Public Resources Code. Reference: Sections 25141, 25150, 25159.5, 25201, 25212, 25214.6, 25214.9, 25219, 25219.1, and 25219.2, Health and Safety Code; 40 CFR Sections 261.4, 261.5 and 273.9.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 3, section 66273.32 to read:

§ 66273.32. USEPA Notification, Department Notification, and Reporting Requirements for Universal Waste Handlers.

(a) USEPA notification requirements

(g) Department notification requirement for universal waste handlers of PV modules.

(1) Any universal waste handler of PV modules who accepts more than 10,000 kilograms (or 22,000 pounds) of PV modules from all offsite sources in a calendar year, calculated collectively, or who conducts manual disassembly of PV modules pursuant to subsection (d)(2) of section 66273.33 of this division shall submit to the Department at the address provided in subsection (f) of this section, a written notification containing the information specified in subsection (g)(2) of this section no later than the earlier of the following dates, if applicable:

(A) 30 calendar days after the date the 10,000 kilogram quantity is reached.

or

(B) 30 calendar days prior to commencing manual disassembly activities pursuant to subsection (d)(2) of section 66273.33 of this division.

(2) This notification shall include:

(A) Name of universal waste handler (if the facility owner is different than the facility operator, also include the owner's name);

(B) ID Number of the universal waste handler, if applicable;

(C) Telephone number of universal waste handler;

(D) Mailing address of universal waste handler and physical address, if different from the mailing address, including county;

(E) Name of the contact person at the universal waste handler's site who should be contacted regarding universal waste management activities;

(F) Telephone number of the contact person;

(G) An e-mail address for the contact person or organization, if available;

(H) The types of PV modules accepted (e.g., thin-film CdTe/CdS, thin-film CIGS/CdS, thin-film amorphous silicon, thin-film CIGS/InP, crystalline silicon, etc.);

(I) The sources of the PV modules (e.g., residential, commercial, governmental decommissions, etc.); and

(J) An indication, if applicable, that the universal waste handler intends to perform physical separation activities pursuant to the subsection (d)(2) of section 66273.33 of this division.

(3) Universal waste handlers shall provide to the Department any changes to the information provided pursuant to subsections (g)(1) and (g)(2) of this section within 30 days of such changes.

Note: Authority cited: Sections 25141, 25150, 25201, 25214.9, 25219.1, and 58012, Health and Safety Code; and Section 42475, Public Resources Code. Reference:

Sections 25141, 25150, 25159.5, 25201, 25214.9, 25219, 25219.1, and 25219.2, Health and Safety Code; and 40 CFR Section 273.32.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 3, section 66273.33 to read:

§ 66273.33. Universal Waste Management Requirements for Batteries, Lamps, and Mercury-Containing Equipment and PV Modules.

The requirements of this section apply only to universal waste handlers of batteries, lamps (including M003 wastes that contain lamps), mercury-containing equipment and PV modules.

(d) PV modules.

(1) A universal waste handler of PV modules shall manage PV modules in a way that prevents releases of any universal waste or component of a universal waste to the environment under reasonably foreseeable conditions, as follows:

(A) A universal waste handler shall contain any PV module in a manner that prevents breakage and release of hazardous components to the environment. If a container is used, such a container shall prevent leakage, spillage, or damage that could cause leakage of hazardous components under reasonably foreseeable conditions.

(B) Intact PV modules or removed intact PV module components that are placed in shipping boxes and/or secured by stretch-film on a pallet shall be deemed to comply with subsection (d)(1)(A) of this section.

(C) A universal waste handler shall immediately clean up and place in a container any PV module that is accidentally or unintentionally broken and which may be expected to cause a release of hazardous constituents to the environment under reasonably foreseeable conditions. The container shall be structurally sound, compatible with the contents of the PV modules, and shall prevent releases of hazardous components to the environment under reasonably foreseeable conditions.

(2) A universal waste handler may remove junction boxes, junction box cables, wires, frames, and other components, and may disassemble PV modules into individual components, modules, or cells provided that the universal waste handler complies with the notification requirements specified in subsection (g)(1)(B) of section 66273.32 and ensures that:

(A) Hazardous constituents will not be released to the environment under reasonably foreseeable conditions;

(B) Persons performing such removal and disassembly activities are thoroughly familiar with the techniques and safety precautions required to perform such activities safely; and

(C) Disassembly activities are conducted in designated and labeled areas of the universal waste handler's facility.

Note: Authority cited: Sections 25141, 25150, 25201, 25214.6, 25214.9, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code.
Reference: Sections 25141, 25150, 25159.5, 25201, 25212, 25214.6, 25214.9, 25219, 25219.1, and 25219.2, Health and Safety Code; 40 CFR Section 273.33.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 3, section 66273.34 to read:

§ 66273.34. Labeling/Marking.

Except as otherwise provided in subsections (g) and (i) of this section, a universal waste handler shall label or mark universal waste to identify the type of universal waste as specified in subsections (a) through (f) and (h) of this section.

(g) In lieu of labeling individual electronic devices, CRTs, and/or containers of CRT glass pursuant to subsections (d) through (f) of this section, a universal waste handler may combine, package, and accumulate those universal wastes in appropriate containers or within a designated area demarcated by boundaries that are clearly labeled with the applicable portion(s) of the following phrase: "Universal Waste--Electronic Device(s)/Universal Waste CRT(s)/Universal Waste CRT Glass".

(h) PV modules (i.e., each PV module), or a container or pallet in or on which the PV modules are contained, shall be labeled or marked clearly with the following phrase: "Universal Waste–PV Module(s)".

(i) In lieu of labeling individual PV modules and/or containers or pallets of PV modules pursuant to subsection (g) of this section, a universal waste handler may accumulate PV modules within a designated area demarcated by boundaries that are clearly labeled with the following phrase: "Universal Waste–PV Module(s)".

Note: Authority cited: Sections 25141, 25150, 25201, 25214.6, 25214.9, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code.
Reference: Sections 25141, 25150, 25159.5, 25201, 25212, 25214.6, 25214.9, 25219, 25219.1 and 25219.2, Health and Safety Code; 40 CFR Section 273.34.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 3, section 66273.36 to read:

§ 66273.36. Personnel Training.

(a) A universal waste handler shall ensure that all personnel who manage universal wastes at the universal waste handler's facility are thoroughly familiar with proper universal waste management and emergency response procedures relative to those persons' responsibilities, as specified in subsections (b) and (c) of this section.

(1) For purposes of this section, "personnel who manage universal waste" means any persons who consolidate, sort, treat, recycle, package for transport, offer for transport, or physically relocate containers of universal waste.

(2) Persons who, in the course of their normal duties, only generate universal wastes from onsite sources and place them into accumulation containers, areas or locations are not "personnel who manage universal waste" (e.g., an office worker who removes spent batteries from an electronic device).

(b) A universal waste handler shall initially train and provide annually, thereafter, training to all personnel who manage or who supervise those who manage universal wastes. Training materials shall be in the form of any written media (e.g., brochures, electronic mail, company letters, pamphlets, posters, etc.) and shall include the date of that material. This training shall include, at a minimum:

(1) The types and hazards associated with the universal waste that personnel may manage at the facility (e.g., hazards due to leaded glass in CRT devices or CRTs, hazards due to cadmium, lead, or selenium in PV modules);

Note: Authority cited: Sections 25141, 25150, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code. Reference: Sections 25141, 25150, 25159.5, 25219, 25219.1, and 25219.2, Health and Safety Code; 40 CFR Section 273.36.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 3, section 66273.39 to read:

§ 66273.39. Tracking Universal Waste Shipments.

(a) Receipt of shipments. A universal waste handler shall keep a record of each shipment of universal waste received at the universal waste handler's facility. The record may take the form of a log, invoice, manifest, bill of lading, or other shipping document. The record for each shipment of universal waste received shall include the following information:

- (1) The name and address of the originating universal waste handler from which the universal waste was sent;
- (2) The quantity [count or weight, consistent with, for example, section 66273.32, subsection (d)] of each type of universal waste received (e.g., batteries, thermostats, lamps, electronic devices, CRTs, CRT glass, PV modules); and
- (3) The date of receipt of the shipment of universal waste.

(c) Shipments offsite. A universal waste handler shall keep a record of each shipment of universal waste sent from the universal waste handler's facility to another facility. The record may take the form of a log, invoice, manifest, bill of lading or other shipping document. The record for each shipment of universal waste sent shall include the following information:

- (1) The name and address of the universal waste handler or destination facility to which the universal waste was sent;
- (2) The quantity [count or weight, consistent with, for example, section 66273.32, subsection (d)] of each type of universal waste sent (e.g., batteries, thermostats, lamps, electronic devices, CRTs, CRT glass, PV modules); and
- (3) The date of departure of the shipment of universal waste.

Note: Authority cited: Sections 25141, 25150, 25150.6, 25219.1, 25219.2 and 58012, Health and Safety Code. Reference: Sections 25141, 25150, 25159.5, 25219, 25219.1, and 25219.2, Health and Safety Code; 40 CFR Section 273.39.

Amend California Code of Regulations, title 22, division 4.5, chapter 23, article 5, section 66273.51 to read:

Article 5. Standards for Universal Waste Transporters

§ 66273.51. Prohibitions.

A universal waste transporter is:

- (a) Prohibited from disposing of universal waste;
- (b) Prohibited from diluting or treating universal waste, except as a consequence of responding to a release as provided in section 66273.54;
- (c) Prohibited from transporting more than five CRTs at any one time unless the CRTs are contained as described in section 66273.33.5, subsection (b)(1)(B); and
- (d) Prohibited from transporting more than 100 kilograms or 220 pounds of electronic devices at any one time unless the electronic devices are contained as described in section 66273.33.5, subsection (a)(1)(B).
- (e) Prohibited from transporting more than 100 kilograms or 220 pounds of PV modules at any one time unless the PV modules are contained as described in section 66273.33, subsection (d)(1)(B).

Note: Authority cited: Sections 25141, 25150, 25150.6, 25201, 25214.9, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code.

Reference: Sections 25141, 25150, 25159.5, 25201, 25214.9, 25219, 25219.1 and 25219.2, Health and Safety Code; and 40 CFR Section 273.51.